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# SPOTIFY RESILLIENCE: SCENARIO ANALYSIS OF RECESSION EFFECTS ON SPOTIFY INDUSTRIES

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Abstract

Spotify has only endured one recessionary cycle since inception in 2006 but was not public at the time so has yet to experience a market downturn during its stint as a listed company. With beta analysis only demonstrating a small factor of the company's sensitivity to a recession, I will try and create an extensive scenario analysis with our model to illustrate valuation differences of Spotify in a possible recession scenario within the next 2-3 years. This will change revenue forecasts as well as costs forecasts, but with overall market performance decreasing during this period as well I will analyze this scenarios impact on the growth of the streaming service industry within the entire music industry. How a possible recession in 2020/2021 will impact the cannibalization of the overall music industry by the streaming service transition, as well as discuss possible impacts to Spotify's valuation in a recessionary case. As a tech company it is inherent that a recession will impact the valuation more than most companies, but this section will discuss by how much in and perform scenario analysis based on sizes of possible recessions to determine if Spotify would withstand even a large-scale market downturn as well as duration of possible recessions and Spotify's resistance to these durations.

Keywords (up to four)

Spotify, Recession, Scenario Analysis, Valuation

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Since inception in 2006 Spotify has experienced the 2008 recession, however this was endured before it had become a public company so the effects on the company are not as quantifiable. There is large speculation on the economy closing in on a recessionary period by the end of 2020 and this scenario analysis should allow for a resilience check on Spotify's business in case of two categories of near-term recessions. Moody's classifies recessions from S1 (strong near-term rebound) up until CS (constant severity), all depending on the size of the downturn as well as the time it takes to recover. S2 (mild recession) as well as S3 (moderate recession) will be the focus of the scenario analysis of Spotify's resilience. The National Bureau of Economic Research researched length of business cycles in the US, and since 1945 the average length of the downturn (from peak to trough) lasted 11 months with the recovery (peak to peak) averaging 68.5 months. Being that these two scenarios are only moderate and mild, the downturn will last 12 months with the recovery varying between 24 and 48 months. In 2008 the recession had about a 14% downturn on overall music industry revenues from 2008 until 2011, which can be slightly characteristic of what could occur in the next recession for Spotify. These scenarios will be measured against the base non recessionary case which was performed in the full equity research of Spotify's valuation.

In a mild recession scenario with a near-term recovery, Moody's forecasts this type to be in the 75% percentile of likelihood as well as predicts a real GDP percentage change of -0.5%. Spotify in this scenario will see a one-year downturn in 2020 which will affect their revenues and costs. Followed by a two-year recovery to return to its base case. This will impede on Spotify's growth prospects but with a quick recovery should enable the company to get back on track with only slight disturbance in revenues but perhaps more impact on its stock price in the DCF analysis.

Premium service revenue inputs from the model built previously will see its largest effect in the downturn year of 2020 with a quick recovery over two years. Gross adds to premium subscribers will experience a decrease in the supposed one-year downturn by 10% and recover modestly at 3% growth over the following two years until returning to the base case forecasts. While gross adds to premium users will see a decrease in the recession, monthly churn will inherently see a slight increase in the initial downturn year by 2.5%. In the recovery period monthly churn will decrease by 2.5% in the following two years until returning to the base case. ARPU will also experience a slight downturn but not as sensitive to a recession as Spotify would focus on keeping user costs lower to maintain users through the recession. Therefor a decrease of -2.5% to ARPU will be applied in 2020 and will be endured over the entire recessionary period of three years until returning to the base case and user growth metrics that allow Spotify to increase its prices.

Ad-Supported revenue inputs will have a negative impact as well in the mild recession scenario. Total MAU will have a 7.5% decrease applied in the downturn year followed by two-year recovery growth of 2.5%. Podcast revenues may see a larger impact from a mild recession with the largest portion of capital expenditure going towards this product which may resist downturn tendencies as well. I assume a decline in podcasts MAU by 5% in the downturn year with a recovery of 3.5% over the following two years. The monetized driver of podcasts (revenue per podcast MAU) will see a 7.5% decline in 2020 which will recover quicker from the large amount of investment and see a 5% growth over the two-year recovery. Revenues per MAU for Ad-Supported will experience a 5% decline in the downturn year as it is a free service but may see less advertising revenues and will see a quick recovery of 2% the following two years.

In the mild recessionary scenario, expenses will be impaired as well, increasing slightly. The contracts finalized in 2019 will have a benefit to Spotify in the case of a recession as those costs will not change with the contracts lasting 4-5 years. Other costs of revenue will increase more than the base case with an assumption of an increase of 30% in the downturn year followed by 24% over the recovery years. All other expenses will already see changes as they are tied to revenues. Investment in podcast will be halted the year of the recession which will slow podcast growth. Investment will therefor remain the same in 2020 and continue its path in the recovery years and thereafter.

In a moderate recession with a slower near-term growth, Moody's forecasts this type to be in the 90th percentile of likelihood as well as predicts a real GDP percentage change from one-year prior of -2%. To quantify this scenario for Spotify's case, I will assume that the S3 recession type will have a moderate decline to revenues as well as a slight increase in costs quantified further in the scenario. The length of the downturn will be assumed to be one year starting in 2020 but the recovery will last 4 years. This will stunt Spotify's current high growth expectations in the near-term, but post recovery should enable Spotify to return to high growth stage as it will remain as an early stage company.

Premium revenue input changes from the model built previously will be applied to quantify impacts of an S3 recession type on Spotify all which will be implemented after 2020. Gross adds to premium subscribers will experience a decrease in the supposed one-year downturn by a substantial 15%. Post downturn into the four-year recovery stage this input will experience a modest 2.5% growth and then return to a 3% level for two years and reproduce similar inputs as the base non recessionary case. With gross adds to premium users declining the monthly churn rate should see as well an increase during the downturn with slower recovery, a 3.5% increase in the monthly churn will therefor be applied in the year 2020 with a 2% decrease following the next four years to return into the base case again. ARPU is one input that my see a slight downturn in a recessionary period but not by much as Spotify user prices should not see any decline really in a recession as the hope to maintain user base will be focused on more. I will therefor apply a decrease of -2.5% to ARPU instead of the base case of -1.5% as more efforts with family plans will lead to a reduction in ARPU. This -3.5% will be endured over the five years after 2020 after which it will return to the base case analysis.

As for the Ad-Supported revenues the total MAU will see a decrease by 10% in the year 2020 followed by a slow recovery of an increase of 1.5% for the following four years until returned to base case. A big impact of a 2020 recession will come from the podcast revenues. The large investment in podcasts by Spotify has set exponential growth expectations for the coming years. These will be impacted largely by a 2020 recession where podcast MAU will decline 10% in the downturn followed by a slow recovery of 3% as a percentage of total MAU until reaching the base case. Revenues per podcasting MAU will see a 10% decline in 2020 followed by a slow recovery of 2% and then return to the base case. Ad-Supported revenue per MAU will undergo a 10% decline in the downturn followed by a 1% increase in the recovery years.

Expenses will also be impacted in the scenario analysis however one benefit to the business plan of Spotify is the royalty costs should see no changes as the contracts are already set and good for 4-5 years. Other costs of revenue for the premium services however will be assumed to increase in the year 2020 and will increase by 35% in the downturn year followed by 26% in the recovery years until returned to the base case. Other operating expenses as they are tied to revenues will already see a change after the input changes in the revenue model. Podcast investment will also be stopped in the recessionary period in the downturn year and the first year of recovery as Spotify would look to reach a comfortable cash reserve again before proceeding with investments.

| Cases | Target | % Change |
|---|---|---|
| Base Case | € 148.30 | 12.00% |
| Mild Recession | € 96.26 | -27.30% |
| Moderate Recession | € 41.20 | -68.90% |

Looking at the output of the DCF analysis of the base case as well as both recessionary cases it can be seen in the table below that Spotify resilience of a mild recession is promising with only a -27% decline in its stock price. However, a -69% decline in the moderate recession scenario is jarring. For a tech company like Spotify with a 1.28 beta it is expected to witness a larger decline in stock prices than what the market would see. Assigning probabilities to these recessionary scenarios would be a bit arbitrary since surveys of economists predict probabilities of a recession by 2020 anywhere from 25%-50%. Instead this scenario analysis shows the resilience Spotify has even in its early stage to withstand a moderate recession without declaring bankruptcy.